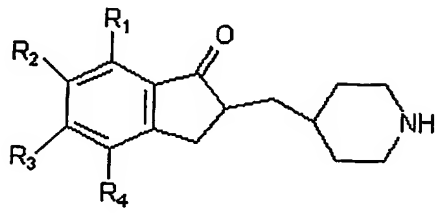
We claim:

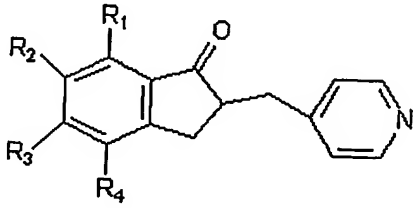
1. A process for the preparation of 2-(4-piperidinyl) methyl-1-indanone of formula II, or a salt thereof,



Formula II

wherein R^1, R^2, R^3, and R^4 are identical or different, and represent hydrogen, straight or branched -chain alkyl, alkoxy, alkoxycarbonyl, alkyl- or dialkyl-aminocarbonyloxy, trifluoromethyl, or halogen,

the process comprising reducing 2-(4-pyridyl) methyl-1-indanone of formula III, or a salt thereof,



Formula III

wherein R^1, R^2, R^3, and R^4 are as defined above; and recovering the 2-(4-piperidinyl) methyl-1-indanone of formula II.

2. The process of claim 1, wherein R^1 and R^4 represent hydrogen and R^2 and R^3 represent methoxy in formula II and formula III.

3. The process of claim 1, wherein the reduction comprises hydrogenation in the presence of a catalyst.

4. The process of claim 3, wherein the catalyst comprises one or more of platinum oxide, ruthenium oxide, and rhodium/carbon.

5. The process of claim 3, wherein the hydrogenation is carried out at a pressure of from about 1 to about 2 atmospheres using hydrogen gas.

6. The process of claim 3, wherein the hydrogenation is carried out at a temperature of from about 10°C to about 35°C.

7. The process of claim 3, wherein the hydrogenation is carried out in a solvent.

8. The process of claim 7, wherein the solvent comprises one or more of ethers, alcohols, chlorinated hydrocarbons, esters, ketones, hydrocarbons, polar aprotic solvents, water and mixtures thereof.

9. The process of claim 8, wherein the alcohol comprises one or more of methanol, ethanol, propanol, isopropanol and butanol.

10. The process of claim 8, wherein the ether comprises one or more of dibutyl ether, methyl tert-butyl ether, dioxane and tetrahydrofuran.

11. The process of claim 8, wherein the chlorinated hydrocarbon comprises one or more of dichloromethane, tetrachloromethane and dichloroethylene.

12. The process of claim 8, wherein the ester comprises one or more of ethyl acetate and isopropyl acetate.

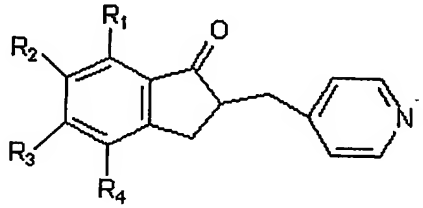
13. The process of claim 8, wherein the ketone comprises one or more of acetone and methylisobutylketone.

14. The process of claim 8, wherein the hydrocarbon comprises one or more of hexane, toluene, and xylene.

15. The process of claim 8, wherein the polar aprotic solvent comprises one or more of dimethylformamide, dimethyl sulphoxide, and N-methylpyrrolidone.

16. The process of claim 1, wherein the recovering comprises one or more of distillation, distillation under vacuum, filtration, filtration under vacuum, decantation, and centrifugation.

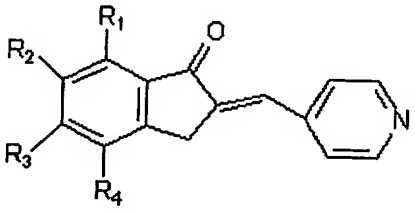
17. A process for the preparation of 2-(4-pyridyl) methyl-1-indanone of formula III, or a salt thereof,



Formula III

wherein R^1, R^2, R^3, and R^4 are identical or different, and represent hydrogen, straight or branched -chain alkyl, alkoxy, alkoxycarbonyl, alkyl- or dialkyl-aminocarbonyloxy, trifluoromethyl, or halogen,

the process comprising selectively reducing 2-(4-pyridyl) methylene-1-indanone of formula IV, or a salt thereof,



Formula IV

wherein R^1, R^2, R^3, and R^4 are as defined above; and recovering the 2-(4-pyridyl) methyl-1-indanone of formula III.

18. The process of claim 17, wherein R^1 and R^4 represent hydrogen and R^2 and R^3 represent methoxy in formula III and formula IV.

19. The process of claim 17, wherein the reduction comprises hydrogenation in the presence of a catalyst.

20. The process of claim 17, wherein the catalyst comprises one or more of palladium/carbon, platinum/carbon and Raney nickel.

21. The process of claim 17, wherein the hydrogenation is carried out at a temperature of from about 10°C to about 35°C.

22. The process of claim 17, wherein the hydrogenation is carried out in a solvent.

23. The process of claim 22, wherein the solvent comprises one or more of ethers, alcohols, chlorinated hydrocarbons, esters, ketones, hydrocarbons, polar aprotic solvents, water, and mixtures thereof.

24. The process of claim 22, wherein the alcohol comprises one or more of methanol, ethanol, propanol, isopropanol and butanol.

25. The process of claim 22, wherein the chlorinated hydrocarbon comprises one or more of dichloromethane, tetrachloromethane and dichloroethylene.

26. The process of claim 22, wherein the ether comprises one or more of dibutyl ether, methyl tert-butyl ether, dioxane and tetrahydrofuran.

27. The process of claim 22, wherein the ester comprises one or more of ethyl acetate and isopropyl acetate.

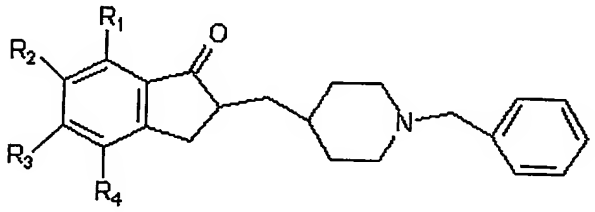
28. The process of claim 22, wherein the ketone comprises one or more of acetone and methylisobutylketone.

29. The process of claim 22, wherein the hydrocarbon comprises one or more of hexane, toluene, and xylene.

30. The process of claim 22, wherein the polar aprotic solvent comprises one or more of dimethylformamide, dimethyl sulphoxide, and N-methylpyrrolidone.

31. The process of claim 17, wherein the recovering comprises one or more of distillation, distillation under vacuum, filtration, filtration under vacuum, decantation, and centrifugation.

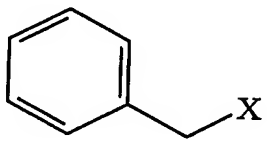
32. A process for the preparation of benzyl-piperidylmethyl-indanones of formula I, or a salt thereof,



Formula I

wherein R^1, R^2, R^3, and R^4 are identical or different, and represent hydrogen, straight or branched -chain alkyl, alkoxy, alkoxycarbonyl, alkyl- or dialkyl-aminocarbonyloxy, trifluoromethyl, or halogen,

the process comprising reacting 2-(4-piperidinyl) methyl-1-indanone of the formula II, or a salt thereof, prepared by the process of claim 1, with a benzyl derivative of formula V,



Formula V

wherein X is a leaving group; and recovering the benzyl-piperidylmethyl-indanones of formula I.

33. The process of claim 32, wherein the leaving group X in the benzyl derivative of formula V is chloride, bromide, iodide, tosylate, or sulphate.

34. The process of claim 32, wherein the reaction is carried out in the presence of a base and a phase transfer catalyst.

35. The process of claim 34, wherein the base comprises one or more of an amine, an inorganic base and ammonia.

36. The process of claim 35, wherein the inorganic base is an alkali metal carbonate.

37. The process of claim 36, wherein the alkali metal carbonate comprises one or more of lithium carbonate, potassium carbonate and sodium carbonate.

38. The process of claim 34, wherein the phase transfer catalyst is comprises one or more of quaternary ammonium salt, or quaternary phosphonium salt.

39. The process of claim 38, wherein the quaternary ammonium salt comprises one or more of tetramethylammonium iodide, tetrabutylammonium iodide, teramethyl-2-butylammonium chloride, trimethylcyclopropylammonium chloride, tetrabutylammonium bromide, and t-butylethyldimethylammonium bromide.

40. The process of claim 32, wherein the reaction is carried out at a temperature of from about 0°C to about 40°C.

41. The process of claim 32, wherein the reaction is carried out in a solvent.

42. The process of claim 41, wherein the solvent comprises one or more of ethers, alcohols, chlorinated hydrocarbons, esters, ketones, hydrocarbons, polar aprotic solvents, water and mixtures thereof

43. The process of claim 42, wherein the alcohol comprises one or more of methanol, ethanol, propanol, isopropanol and butanol.

44. The process of claim 42, wherein the ether comprises one or more of dibutyl ether, methyl tert-butyl ether, dioxane and tetrahydrofuran.

45. The process of claim 42, wherein the chlorinated hydrocarbon comprises one or more of dichloromethane, tetrachloromethane and dichloroethylene.

46. The process of claim 42, wherein the ester comprises one or more of ethyl acetate and isopropyl acetate.

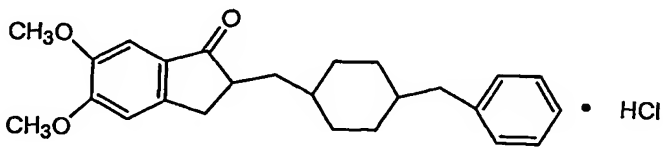
47. The process of claim 42, wherein the ketone comprises one or more of acetone and methylisobutylketone.

48. The process of claim 42, wherein the hydrocarbon comprises one or more of hexane, toluene, and xylene.

49. The process of claim 42, wherein the polar aprotic solvent comprises one or more of dimethylformamide, dimethyl sulphoxide, and N-methylpyrrolidone.

50. process of claim 32, wherein the recovering comprises one or more of distillation, distillation under vacuum, filtration, filtration under vacuum, decantation, and centrifugation.

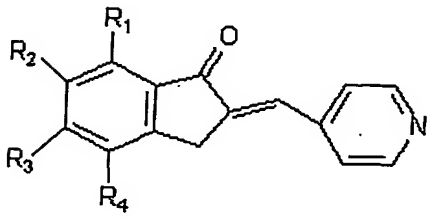
51. A process e preparation of donepezil of formula VI or a pharmaceutically acceptable salt thereof,



Formula VI

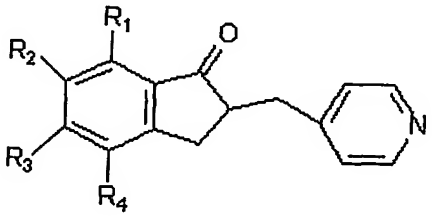
the process comprising:

(a) selectively reducing 2-(4-pyridyl) methylene-1-indanone of formula IV, or a salt thereof,



Formula IV

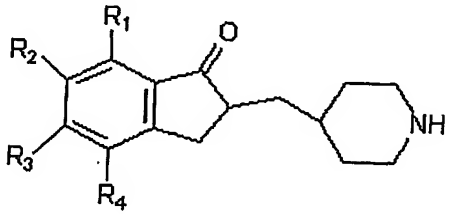
to obtain 2-(4-pyridyl) methyl-1-indanone of formula III,



Formula III

wherein R^1 and R^4 represent hydrogen and R^2 and R^3 represent methoxy in formula III and formula IV,

(b) reducing the 2-(4-pyridyl) methyl-1-indanone of formula III to obtain 2-(4-piperidinyl) methyl-1-indanone of formula II,

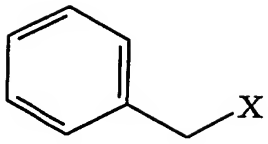


Formula II

wherein R^1 and R^4 represent hydrogen and R^2 and R^3 represent methoxy,

(c) reacting the 2-(4-piperidinyl) methyl-1-indanone of formula II,

with a benzyl derivative of formula V,



Formula V

wherein X is a leaving group, in the presence of an inorganic base and a phase transfer catalyst, and

(d) recovering the donepezil or a pharmaceutically acceptable salt thereof.

52. he process of claim 51, wherein the leaving group X in the benzyl derivative of formula V is chloride, bromide, iodide, tosylate, or sulphate.

53. pharmaceutical composition comprising a therapeutically effective amount of donepezil or a pharmaceutically acceptable salt thereof obtained by the process of claim 51; and one or more pharmaceutically acceptable carriers, excipients or diluen.